

Notice of Allowability

Application No.

10/743,496

Examiner

Nicholas A. Smith

Applicant(s)

WANG ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 13 November 2006.
2. ☒ The allowed claim(s) is/are 1-6 and 8-13.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____.
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Claim Objections

1. The objection to claims 1-12 has been withdrawn due to the amendments of the claims.

Response to Amendment

2. The rejections of claims 1-6 and 8-10 have been withdrawn in view of Applicant's amendments submitted 13 November 2006.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
4. Authorization for this examiner's amendment was given in a telephone interview with Cheng-Kang Hsu on 25 January 2007.
5. The application has been amended as follows:

Claim 1 now reads:

1. (Currently Amended) A fountain-type electroplating apparatus with functions of voltage detection and flow rectification, comprising:

an electroplating tank having a shell, a substrate cathode electrode arranged on top of the shell, a circumference of the substrate electrode having a plurality of joints, and an mesh shaped anode arranged at the bottom of the shell, a circumference of the mesh shaped anode having a plurality of joints;

a switcher having a first switching point and a corresponding second switching point, ~~a first switching point and~~ the switcher alternately operating with either ~~the a~~ positive electrode or ~~the a~~ negative electrode;

a plurality of connecting line, each of which having one end connected to one of the joints of the mesh shaped anode, and all of each having another ends connected jointly to a node and to both the positive electrode and the first switching point;

a plurality of detection circuits, wherein, the first end of one of the detection circuit is connected to the corresponding second switching point, and the first ends of the other of the detection circuits are connected jointly to a node and to both the negative electrode and the second switching point, all the second ends of the detection circuits are respectively connected to the joints of the substrate;

a rectification device having a hull, a separating plate arranged under the mesh shaped anode and a pipe connecting to the hull for transporting an electrolyte therein, the separating plate having at least a hole and being connected to and arranged inside the hull; and

an overflow tank having an exit hole arranged at the bottom thereof;

wherein the electroplating tank is positioned inside the overflow tank, and the rectification device is arranged under the electroplating tank.

Allowable Subject Matter

6. The following is an examiner's statement of reasons for allowance:
7. Bacon et al. and Shamouilian et al. teach power supplies (Bacon et al., Fig. 3. and Shamouilian et al., Fig. 3). Bacon et al. teaches a switching point (Fig. 3).

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Shamouilian et al. teaches a plurality of detection circuits (Fig. 3) that include resistors and current sensors, but not resistors and voltmeters in parallel. Olgado et al. inherently teaches a plurality of connecting line from anode contacts to positive electrode of a power supply (claim 4). None of the prior art teaches employing a switch to have the first contact point (of a plurality of contact points) on the substrate alternatively operating with either a positive or a negative electrode, of which the positive and the negative electrode are electrodes of any device capable of delivering an electric potential and in combination with the instantly claimed limitations.

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hongo et al. (US Patent 6517689) pertains to voltage control of a plating apparatus.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicholas A. Smith whose telephone number is (571)-272-8760. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

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11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571)-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NAS

ROY KING
SUPERVISOR, PATENT EXAMINER
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